

WHAT IS CLAIMED IS:

1. A method of describing object region data about an object in video data over a plurality of frames, said method comprising:
- a.) approximating the object using a figure for each of said frames;
 - b.) extracting a plurality of points representing the figure for each of said frames;
 - c.) approximating trajectories with functions, the trajectories being obtained by arranging, in the frames advancing direction, position data about one of said plurality of points and relative position data about remaining points with reference to said one of said plurality of points; and
 - d.) describing the object region data using the functions.

2. The method according to claim 1, wherein said object region data comprises information representing a range of frames in which the object exists in the video data and information identifying the figure approximating the object region.

3. The method according to claim 1, wherein said object region data comprises one of information representing related information linking to the object and information representing a method of accessing the related information.

4. The method according to claim 1, wherein said

Pub 2001/0048753
para. 41, 45, 73

5
para. 16, 42, 49, 110

09852620-051101

DBA

relative position data are components of differential vectors between the one of said plurality of points and remaining points.

5 5. The method according to claim 1, wherein said object region data comprises parameters of the functions.

6. A method of describing object region data about an object in video data over a plurality of frames, said method comprising:

- 10 a.) approximating the object using a figure for each of said frames;
- b.) extracting a plurality of points representing the figure for each of said frames;
- c.) approximating trajectories with functions, the
15 trajectories being obtained by arranging, in the frames advancing direction, position data about said plurality of points in a reference frame and relative position data about said plurality of points in a succeeding frame with reference to the position data about said
20 plurality of points in the reference frame; and
- d.) describing the object region data using the functions.

25 7. The method according to claim 6, wherein said object region data comprises information representing a range of frames in which the object exists in the video data and information identifying the figure approximating the object region.

09852620 051101
TOTTS SUBA

8. The method according to claim 6, wherein said object region data comprises one of information representing related information linking to the object and information representing a method of accessing the related information.

9. The method according to claim 6, wherein said relative position data are components of differential vectors between said plurality of points in the reference frame and said plurality of points in the succeeding frame.

10. The method according to claim 6, wherein said object region data comprises parameters of the functions.

11. A method of describing object region data about an object in video data over a plurality of frames, said method comprising:

- a.) approximating the object using a figure for each of said frames;
- b.) extracting a plurality of points representing the figure for each of said frames;
- c.) approximating trajectories with functions, the trajectories being obtained by arranging, in the frames advancing direction, data indicating positions of said plurality of points; and
- d.) describing the object region data using the functions and depth information of the object.

12. The method according to claim 11, wherein said

098526305101

object region data comprises information representing a range of frames in which the object exists in the video data and information identifying the figure approximating the object region.

5 13. The method according to claim 11, wherein said object region data comprises one of information representing related information linking to the object and information representing a method of accessing the related information.

10 14. The method according to claim 11, wherein said object region data is described by using the depth information of the object and parameters of the functions.

15 15. The method according to claim 11, wherein said depth information is a relative depth and has a discrete level value.

16. A method of describing object region data about an object in video data over a plurality of frames, said method comprising:

20 approximating the object using a figure for each of said frames;

extracting a plurality of points representing the figure for each of said frames;

25 approximating trajectories with functions, the trajectories being obtained by arranging, in the frames advancing direction, data indicating positions of said plurality of points; and

095262044101
TOTAL 0295850

describing the object region data using the functions and display flag information indicating a range of frames in which the object or each of said points is visible or not.

5 17. The method according to claim 16, wherein said object region data comprises information representing a range of frames in which the object exists in the video data and information identifying the figure approximating the object region.

10 18. The method according to claim 16, wherein said object region data comprises one of information representing related information linking to the object and information representing a method of accessing the related information.

15 19. The method according to claim 16, wherein said object region data is described by using the display flag information and parameters of the functions.

20 20. A method of describing object region data about an object in video data over a plurality of frames, said method comprising:

a.) approximating the object using a figure for each of said frames;

b.) extracting a plurality of points representing the figure for each of said frames;

25 c.) approximating trajectories with functions, the trajectories being obtained by arranging, in the frames advancing direction, data indicating positions of said

09526005101
TOT 5925850

plurality of points; and

- d.) describing the object region data using the functions and object passing range information indicating a range where the figure approximating the object exist over said plurality of frames.

21. The method according to claim 20, wherein said object region data comprises information representing a range of frames in which the object exists in the video data and information identifying the figure approximating the object region.

22. The method according to claim 20, wherein said object region data comprises one of information representing related information linking to the object and information representing a method of accessing the related information.

23. The method according to claim 20, wherein said object region data is described by using the object passing range information and parameters of the functions.

24. A method of describing object region data about an object moving in a panorama image formed by combining a plurality of frames with being overlapped, said method comprising:

- a.) approximating the object in the panorama image using a figure;
- b.) extracting a plurality of points representing the figure in a coordinate system of the panorama image;

c.) approximating trajectories with functions, the trajectories being obtained by arranging, in the frames advancing direction, data indicating positions of said plurality of points; and

5 d.) describing the object region data using the
functions.

25. The method according to claim 24, wherein said object region data comprises information representing a range of frames in which the object exists in the video data and information identifying the figure approximating the object region.

26. The method according to claim 24, wherein said object region data comprises one of information representing related information linking to the object and information representing a method of accessing the related information.

27. The method according to claim 24, wherein said object region data comprises parameters of the functions.

20 28. An article of manufacture comprising a
computer usable medium having computer readable program
code means embodied therein and for An article of
manufacture comprising a computer usable medium having
computer readable program code means embodied therein
25 and, for describing object region data about an object
in video data over a plurality of frames, the computer
readable program code means comprising:

a.) computer readable program code means for approximating the object using a figure for each of said frames;

5 b.) computer readable program code means for extracting a plurality of points representing the figure for each of said frames;

10 c.) computer readable program code means for approximating trajectories with functions, the trajectories being obtained by arranging, in the frames advancing direction, position data about one of said plurality of points and relative position data about remaining points with reference to said one of said plurality of points; and

15 d.) computer readable program code means for describing the object region data using the functions.

20 29. An article of manufacture comprising a computer usable medium having computer readable program code means embodied therein and for describing object region data about an object in video data over a plurality of frames, the computer readable program code means comprising:

computer readable program code means for approximating the object using a figure for each of said frames;

25 computer readable program code means for extracting a plurality of points representing the figure for each of said frames;

09052620:053104
TOTF5095060

computer readable program code means for approximating trajectories with functions, the trajectories being obtained by arranging, in the frames advancing direction, position data about said plurality of points in a reference frame and relative position data about said plurality of points in a succeeding frame with reference to the position data about said plurality of points in the reference frame; and

computer readable program code means for describing the object region data using the functions.

30. An article of manufacture comprising a computer usable medium having computer readable program code means embodied therein and for describing object region data about an object in video data over a plurality of frames, the computer readable program code means comprising:

computer readable program code means for approximating the object using a figure for each of said frames;

computer readable program code means for extracting a plurality of points representing the figure for each of said frames;

computer readable program code means for approximating trajectories with functions, the trajectories being obtained by arranging, in the frames advancing direction, data indicating positions of said plurality of points; and

09852620 051101
TOTALS

[Handwritten signature]

computer readable program code means for describing the object region data using the functions and depth information of the object.

31. An article of manufacture comprising a computer usable medium having computer readable program code means embodied therein and for describing object region data about an object in video data over a plurality of frames, the computer readable program code means comprising:

10 a) computer readable program code means for approximating the object using a figure for each of said frames;

15 computer readable program code means for extracting a plurality of points representing the figure for each of said frames;

20 c) computer readable program code means for approximating trajectories with functions, the trajectories being obtained by arranging, in the frames advancing direction, data indicating positions of said plurality of points; and

25 d) computer readable program code means for describing the object region data using the functions and display flag information indicating a range of frames in which the object or each of said points is visible or not.

32. An article of manufacture comprising a computer usable medium having computer readable

09852620 041301

program code means embodied therein and for describing object region data about an object in video data over a plurality of frames, the computer readable program code means comprising:

5 computer readable program code means for approximating the object using a figure for each of said frames;

10 computer readable program code means for extracting a plurality of points representing the figure for each of said frames;

15 computer readable program code means for approximating trajectories with functions, the trajectories being obtained by arranging, in the frames advancing direction, data indicating positions of said plurality of points; and

20 computer readable program code means for describing the object region data using the functions and object passing range information indicating a range where the figure approximating the object exist over said plurality of frames.

25 33. An article of manufacture comprising a computer usable medium having computer readable program code means embodied therein and for describing object region data about an object moving in a panorama image formed by combining a plurality of frames with being overlapped, the computer readable program code means comprising:

09852630-051101

09852630-051101

computer readable program code means for approximating the object in the panorama image using a figure;

5 computer readable program code means for extracting a plurality of points representing the figure in a coordinate system of the panorama image;

10 computer readable program code means for approximating trajectories with functions, the trajectories being obtained by arranging, in the frames advancing direction, data indicating positions of said plurality of points; and

computer readable program code means for describing the object region data using the functions.

15 34. A computer data signal embodied in a carrier wave, the computer data signal capable of describing object region data about an object in video data over a plurality of frames, the computer data signal comprising:

20 program code portion for causing a computer to approximate the object using a figure for each of said frames;

program code portion for causing a computer to extract a plurality of points representing the figure for each of said frames;

25 program code portion for causing a computer to approximate trajectories with functions, the trajectories being obtained by arranging, in the frames

09052620 051401

[Handwritten signature]

advancing direction, position data about one of said plurality of points and relative position data about remaining points with reference to said one of said plurality of points; and

5 program code portion for causing a computer to describe the object region data using the functions.

35. A computer data signal embodied in a carrier wave, the computer data signal capable of describing object region data about an object in video data over a plurality of frames, the computer data signal comprising:

10 program code portion for causing a computer to approximate the object using a figure for each of said frames;

15 program code portion for causing a computer to extract a plurality of points representing the figure for each of said frames;

20 program code portion for causing a computer to approximate trajectories with functions, the trajectories being obtained by arranging, in the frames advancing direction, position data about said plurality of points in a reference frame and relative position data about said plurality of points in a succeeding frame with reference to the position data about said plurality of points in the reference frame; and

25 program code portion for causing a computer to describe the object region data using the functions.

09652620-05401

09652620-05401

36. A computer data signal embodied in a carrier wave, the computer data signal capable of describing object region data about an object in video data over a plurality of frames, the computer data signal comprising:

program code portion for causing a computer to approximate the object using a figure for each of said frames;

program code portion for causing a computer to extract a plurality of points representing the figure for each of said frames;

program code portion for causing a computer to approximate trajectories with functions, the trajectories being obtained by arranging, in the frames advancing direction, data indicating positions of said plurality of points; and

program code portion for causing a computer to describe the object region data using the functions and depth information of the object.

37. A computer data signal embodied in a carrier wave, the computer data signal capable of describing object region data about an object in video data over a plurality of frames, the computer data signal comprising:

program code portion for causing a computer to approximate the object using a figure for each of said frames;

09052620 051101
TOP SECRET

program code portion for causing a computer to extract a plurality of points representing the figure for each of said frames;

5 program code portion for causing a computer to approximate trajectories with functions, the trajectories being obtained by arranging, in the frames advancing direction, data indicating positions of said plurality of points; and

10 program code portion for causing a computer to describe the object region data using the functions and display flag information indicating a range of frames in which the object or each of said points is visible or not.

15 38. A computer data signal embodied in a carrier wave, the computer data signal capable of describing object region data about an object in video data over a plurality of frames, the computer data signal comprising:

20 program code portion for causing a computer to approximate the object using a figure for each of said frames;

program code portion for causing a computer to extract a plurality of points representing the figure for each of said frames;

25 program code portion for causing a computer to approximate trajectories with functions, the trajectories being obtained by arranging, in the frames

09852620-051101

SUBAR

advancing direction, data indicating positions of said plurality of points; and

program code portion for causing a computer to describe the object region data using the functions and object passing range information indicating a range where the figure approximating the object exist over said plurality of frames.

39. A computer data signal embodied in a carrier wave, the computer data signal capable of describing object region data about an object moving in a panorama image formed by combining a plurality of frames with being overlapped, the computer data signal comprising:

program code portion for causing a computer to approximate the object in the panorama image using a figure;

program code portion for causing a computer to extract a plurality of points representing the figure in a coordinate system of the panorama image;

program code portion for causing a computer to approximate trajectories with functions, the trajectories being obtained by arranging, in the frames advancing direction, data indicating positions of said plurality of points; and

program code portion for causing a computer to describe the object region data using the functions.

0905262051101

51B K2